MICROSCOPY.[1]

PLASTER TABLETS FOR MOUNTING ANATOMICAL PREPARATIONS.—Mr. H. Garman, of Champaign, Ill., finds tablets made of plaster preferable to most others for mounting anatomical preparations. The following communication on this subject has been received from Mr. Garman:—

"My experiments with this material were made without knowledge of its use for the purpose in other quarters, and I was surprised to learn, upon inquiry, that the large white tablets used for ordinary alcoholic specimens in the Museum of Comparative Zoology were of plaster, and had been cast upon glass. However, I believe the manner of making them, and the facility with which they can be produced, is not as generally known as it should be, and that, as my results were reached independently, the details of the method here given may prove of service even to those who are accustomed to the use of plaster. I do not know that colored plaster tablets have been used by others.

"The tablets are made by mixing good plaster of Paris with water until the mixture is of the consistency of thick cream. It is then poured upon plates of glass, and after it has "set" the tablets are roughly marked out with a knife blade. In about twelve hours they can be taken from the glass and trimmed more exactly with the aid of a ruler. They can be made of any desired thickness, and when fully hardened are sufficiently strong to endure the handling to which they are liable. The soft plaster may be spread uniformly and its upper surface be made smooth by taking the glass bearing it between the hands, and moving it abruptly from side to side a few times. If, after the tablets have become dry and hard, it is desired to trim them, or to alter their shape, it can readily be done with a knife after first soaking them in water.

"Dissections or other objects are fastened in position with thread passed, by means of a needle, through the edges of the object, or around some part of it, and tied at the back of the tablet. Or holes may be drilled through the tablet and the thread be secured after passing through them.

"Common prepared bluing is a good coloring material, and mixed with plaster in proper quantities can be made to give a range of hues from blue-gray to deep blue that, with the pure white of uncolored plaster, satisfies most needs in the way of backgrounds. Black ink and carmine staining fluids can be used to stain the white tablets. But the latter color is not often a desirable one, and if it is to be used can be more economically applied by first dissolving carmine in water with heat, then adding the plaster, finally casting

[1] Edited by C. O. Whitman, Director of the *Lake Laboratory*, Milwaukee.

upon glass. Lampblack will not, in its ordinary form, mix with plaster. A variety of colors may be obtained by using the 'Florentine Fresco Colors' sold by F. W. Devoe & Co., New York. They may be mixed with the plaster. The chrome orange, chrome yellow, Venetian red and ivory black have been on trial in tablets for about a week, and show no change under the alcohol.

"The use of plaster in tablets is not claimed to be new with the writer, but this method of manipulation and coloring is the result of independent experiment, and may therefore present some features of interest. Tablets as above prepared have proved, in my experience, superior to those made of wax in the matter of cost, in the facility with which they are to be prepared, and in neatness of appearance."

PREPARATION OF THE EGGS OF ASCARIS MEGALOCEPHALA.—Through the researches of M. Nussbaum,[1] Ed. van Beneden,[2] J. B. Carnoy,[3] and Otto Zacharias,[4] the egg of *Ascaris megalocephala* of the horse has become a classical object for the study of fecundation. In the simple structure and enormous size of its nuclei, this egg offers unequalled advantages for such study. But a very serious drawback is found in the thick impervious egg-membrane, which is capable of resisting for a long time the action of preservative reagents. Dilute acetic or nitric acid requires at least from eight to ten days to penetrate; and alcohol of 40 to 50 per cent., two or three months. Development goes on undisturbed in osmic acid of 1 per cent.; and several days are necessary even for absolute alcohol to take effect.

For tracing the karyokinetic phenomena of fecundation, it is of the utmost importance to find reagents that will kill and fix quickly, as reliable preparations of transitory stages in nuclear metamorphosis cannot be expected with reagents that penetrate slowly.

Otto Zacharias[5] has discovered an acid mixture which overcomes the resitence of the egg-membrane, and fixes the egg completely within 25 to 30 minutes. The mixture consists of

Alcohol (90 to 100 per cent.)	80 ccm.
Glacial acetic acid	20 ccm.
Osmic acid (1 per cent.)	20 to 30 drops.

A little glycerine or chloroform increases the clarifying power of the mixture.

[1] Archiv f. mik. Anat., xxiii., 1884.
[2] Archives de Biol., iv., 1884.
[3] La Cellule, 1886-7.
[4] Archiv f. mik. Anat., xxx., H. 1, 1887.
[5] Ueber Abtödting und Färbung der Eier von Ascaris megalocephala. Anatomischer Anzeiger, iii., 1, p. 24, Jan., 1888.

Van Beneden (*Nouvelles Recherches sur la fécondation, etc.*, 1887) has employed a stronger mixture, consisting of absolute alcohol and acetic acid in equal parts, without the addition of osmic acid.

Preparation of Material.—1. Freshly obtained[1] Ascaris females are placed between two sheets of cotton, which have been moistened a little in a 3 per cent. solution of common salt, then covered with a bell glass, and exposed one to three hours to an incubation temperature of 25°C. This procedure brings the polar globules to development in the younger eggs, and forces the cleavage in the older eggs.

2. After an hour's incubation, it is well to preserve a part of the material at disposal. The genital sacks are laid bare by a longitudinal slit in the body-wall, opposite the sexual aperture; the vagina is then cut free from the body, the alimentary tract lying between the two sacks is carefully removed, and the ovarian portions of the sacks are cut off, leaving the uterine portions with their contents for preservation. The anterior ends of the uteri contain eggs in all stages of maturation and fecundation; the posterior ends contain eggs already beginning to cleave. The killing and hardening process should vary considerably for these different stages.

3. It is advisable, therefore, to cut each uterus into thirds, and to expose the anterior third to the action of the acid mixture only five to seven minutes, the middle third ten to fifteen minutes, and the posterior third at least twenty-five minutes. After fixation, the anterior and middle thirds are transferred to 30 per cent. alcohol, and after a few hours to 50 per cent. alcohol, in which they may be kept for a long time. Eggs in process of cleavage—found in the posterior third—should be removed to absolute alcohol the moment they begin to show a light brown staining. After two to three hours they are to be transferred to 70 per cent. alcohol for preservation. If the acid mixture be heated to about 24°C., the posterior third of the uterus will require an exposure of only ten to fifteen minutes.

4. *Schneider's acid carmine* is an excellent staining agent. It is prepared as follows: Glacial acetic acid is diluted with distilled water to about 50 per cent.; then as much pulverized carmine is added to the boiling acid as will dissolve. After filtering until the fluid becomes clear, a little rectified wood-vinegar is added (one drop *A. pyroligneosum* to ten ccm. of the carmine solution) for the purpose of strengthening the clarifying power of the mixture.

The younger stages may be left in the dye three to four hours, the older stages eight to ten hours.

Beautiful views of the karyokinetic figures are thus obtained, but they are not permanent. After three to four hours they begin to lose in distinctness.

[1] From the living horse, by means of arsenic pills.

Grenacher's alcohol carmine gives more durable preparations. Eggs thus stained may be improved by treatment with *methyl green* (2 per cent.), to which has been added a few drops of glycerine. The spindle-fibres of the first and second amphiasters may be most successfully stained with "Modebraun," in very dilute aqueous solution. Preparations are mounted in dilute glycerine (glycerine two parts, distilled water one part).

SCIENTIFIC NEWS.

—The *Journal* of the Royal Microscopical Society has just completed its first decade, and the last number of its tenth volume contains an editorial "preface" by the editor, Mr. Frank Crisp, paying a deserved tribute to his associate editors and especially to Professors F. Jeffrey Bell and A. W. Bennett, who for these ten years have prepared those abstracts of the biological literature of the world which have made the Journal indispensable to every naturalist who wishes to keep up with other subjects outside his specialty.

—George W. Tryon, Jr., the Conchologist, died in Philadelphia February 6th, aged fifty years. Although not a Friend, his education was gained at Friends' school, and at an early age he engaged in business with his father and brother. The lack of collegiate education he amply made up in later life by private study. His early years were devoted assiduously to his business and to his studies, and his attention having been concentrated on natural history, and especially on the study of shells, he withdrew in 1867 from business in order to devote himself solely to his favorite pursuit. A man of untiring energy and perseverance, he soon became eminent in this domain of science. His first paper was published in the proceedings of the Academy of Natural Sciences for 1861, under the title "On the Mollusca of Harper's Ferry, Virginia." In 1865 he established the "American Journal of Conchology," of which seven annual volumes were issued. To this, and to the proceedings of the Academy he contributed numerous papers, numbering at the end of 1873 no less than sixty-four contributions to this favorite science, all showing characteristic accuracy of detail and patient research. In addition to these papers he also issued a Bibliography of American Writers on Conchology in 1861; a Monograph of the Fresh Water Univalve Mollusca of the United States, in continuation of Haldeman's work on the same subject; a Synonymy of the Species of Strepomatidæ in 1865; a Monograph of the Terrestrial Mollusca inhabiting the United States, 1866; an American Marine Conchology, 1873; the third volume of the Land and Fresh Water Shells of the United States, published by the Smithsonian Institution, and a Structural and